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Investing in Ear-training

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1 Introduction Peter Ladefoged recounts how "When Daniel Jones, the greatest phonetician of the first part of the twentieth century, was setting out on a fieldwork trip, a reporter asked him, 'Professor Jones, what instruments are you taking with you?' He pointed to his ears and said 'Only these.'" (Ladefoged 2003:27.) He continues "There is no doubt that the ultimate authority in all phonetic questions is the human ear..."

In spite of this, it is increasingly the case that dwindling resources are impacting on practical phonetic training. Training in listening and production skills – skills that have always been the hallmark of phonetic accomplishment – is being diluted, even excluded, from basic phonetics syllabuses. Exclusion is likely to be for one of two main reasons. The argument prosecuted by some colleagues is that these skills are becoming increasingly redundant, that machines are better than people at auditory analysis; such a view supports deliberate cuts in practical training – exclusion by design. And there is the problem with cost. Practical phonetic training is time-consuming to deliver and therefore expensive, a drain on the average departmental budget; this, in turn, results in exclusion by default – we can't have what we can't afford.

Whatever the reason, the longer term effect of this exclusion is now being felt at the cutting edge. There are fewer and fewer phoneticians available to train and assess students in practical aspects of the subject. The fundamental question we need to address is whether or not it is still important for a phonetician to be able to analyse and describe speech sounds on the basis of what (s)he hears. A secondary question is whether we can justify the initial cost and just how much that cost should be.

2 Humans or machines? A century ago, it was taken for granted that any phonetics course would devote a substantial number of hours to *practical phonetics* – ear-training and production training. One authority, Ida Ward, even published a guide to what we would probably nowadays call 'best practice' for achieving the optimum balance between theory and practice. In a 60-hour course she recommended devoting 66% of the time to practice (ear-training and production, including reading phonetically transcribed texts) and 33% to theory. (Coincidentally, this is exactly the balance in my own courses at the University of Westminster today.) Interestingly, by the fifth edition of the book in 1972, this recommendation had been omitted because of "curricula changes in present-day Colleges of Education" (Ward 1972:242).

Jones and Ladefoged – together surely the two most influential phoneticians of the last hundred years – were both firm believers in promoting practical phonetics training. Jones emphasized the need to cement theoretical knowledge through practice on a number of occasions. For example, in *The Pronunciation of English* (1909, 1956) he wrote "Students of speech cannot [...] become proficient in phonetics merely by reading [...] descriptions. They must also perform practical exercises..." (Jones 1956:164). The point is echoed by Ladefoged who wrote that "... most students can produce nearly all the sounds of the IPA chart [...] provided they have an instructor leading them through a set of practical exercises..." (Ladefoged 2003:10). Traditionally, then, theory and practice have been understood to go hand in hand.

The most extreme counter-opinion to this view is that "the days of the phonetician as a human tape-recorder are over: magnetic tape does the job far more efficiently... oral and aural acrobatics, though sometimes still useful, are no longer sufficient or even essential requirements in phonetics." (Butcher 1982:69-70.)

The obvious weakness in this line of thinking is that, as well as recording and measuring what is within our range of hearing, machines pick up on many things that are inaudible to the human ear. Studying speech, we need to know what is audible and what is not; within the audible, we need to determine what is salient and what it not. Only a human ear can provide the answers. The machines are our servants, not our masters. Ladefoged's more measured view summarises this: "...nowadays instrumental aids can often illuminate particular points, acting like a magnifying glass when we need to distinguish between two similar sounds." (Ladefoged 2003:10.) So, machines can enable us to explain *why* things sound different, but they cannot hear for us. There is a place in phonetics for machines but they do not, and never will, replace the human ear.

3 Justifying the cost

3.1 Just how expensive is practical phonetics?

I teach a one year, two module programme covering the syllabus of the Certificate examination of the International Phonetic Association (for which we regularly enter undergraduate students) in a British university and I enjoy what I consider to be an enlightened and fair timetabling deal. Because of the practical nature of my subject, I am not constrained to the 24 teaching hours per module apportioned to most subjects; I have 36 hours and in one of these I am permitted to split students into small groups of 12-15 for general phonetic practical work. Moreover, students' practical skills are evaluated by means of a traditional oral examination involving live contact with two phonetically trained examiners. Depending on student numbers, the practical examination adds considerably to the cost of delivering the course.

Outside of established centres of phonetic excellence such as UCL, this practice is becoming increasingly rare and even thirty years ago, when I lectured at Reading University, there was a move to transfer all such practical assessment to tape which would then be listened to and evaluated by a single examiner. Today, many centres appear to have dispensed with complementary practical training and assessment altogether. On average, the delivery of my two module basic phonetics programme costs at least half as much again as a regular one group two-hour lecture-module and, depending on student numbers, can cost three times as much (the eventual cost being determined by the number of practical groups and the number of individual oral exams).

3.2 Can it be justified?

Justifying the cost is something I have to engage in on a fairly regular basis. My arguments for this rely heavily on the University's far-sightedness and goodwill: we are short of good practical phoneticians; this programme enables students to acquire practical phonetic training and to gain an additional qualification (the IPA *Certificate*); it regularly produces candidates for postgraduate phonetics training. The last two points benefit the University in terms of its standing and reputation and, in a sense justify the more philanthropic aim (that of producing a larger number of phonetically trained graduates).

Additionally, though, it would also be valuable to justify the additional cost by being able to demonstrate that the training itself results in improved practical phonetic skills. This is

not easily done in that we cannot realistically engage in pre-training testing because at that point the students do not have the language or tools with which to communicate with the examiners. Moreover, because of the huge cost to the University, we cannot conduct an oral examination more than once in the year. What is even more difficult is the fact that because the materials increase in difficulty during the training period, earlier research based on mid-year and end-of-year ear-training scores has even hinted that extended training might not have any value at all (Ashby 2002), that we might just as well stop after one module as continue for two. Figure 1 shows how in a typical cohort only 5 out of 20 students appear to improve from the mid-year test to the exit point test.

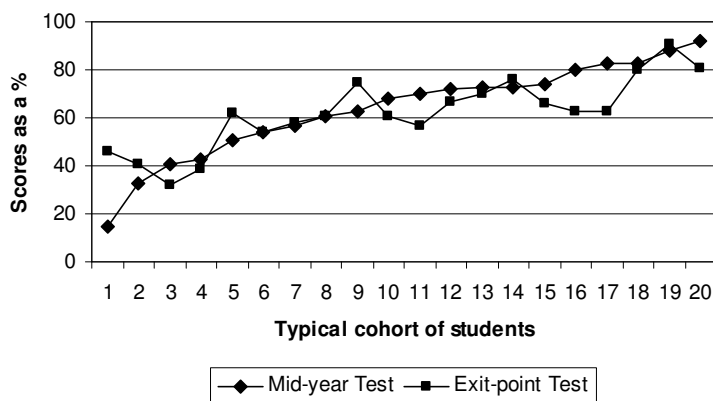


Figure 1. Typical mid-year and exit-point test results

However, a small, recent investigation provides a more encouraging picture. A group of 14 volunteers re-took their mid-year ear-training test after completing the second 12-week training programme. As Figure 2 shows, while not everyone improved, the majority demonstrated at least modest improvement. The average score rose from 73% to 83% with all scores at 50% or above at the exit point, compared with a low of 39% – a fail mark – in the original mid-year test, or an average improvement of 14% per student (the actual range being from 2% to 39%).)

This kind of improvement is usually masked by comparing scores for tests of unequal difficulty – mid-year, progression assessments with end-of-year, exit-point assessments where the materials are, almost inevitably, harder. So, instead of seeing exit velocity increase, as in Figure 2, the picture tends to be of a plateau effect, showing virtually no change in the level of achievement, as in the graphs in Figures 1 and 3 (where half of the exit point test scores are lower than the first attempt at the mid-year test). Such a lack of transparency not only serves to de-motivate and disaffect students (who are actually working hard in order, apparently, to stand still) but they discourage teachers and prompt questions (in quality monitoring reviews, etc.) about the value of the extended training period.

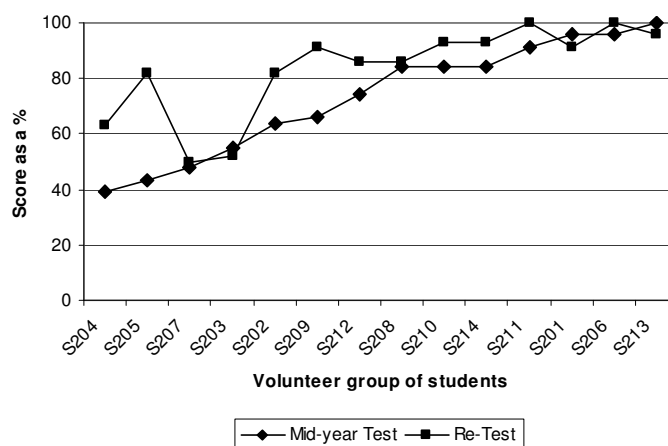


Figure 2. Volunteers mid-year and re-test scores

One cost-cutting proposal, on the basis of Figure 1 type data was to terminate expensive practical training mid-year, arguing that longer training does not mean improved skills. Indeed, even if the volunteers' mid-year and exit point results are compared, as in Figure

3, this would still seem to be true. While the *re*-test results showed an improvement in group performance of 10%, the improvement comparing easier and harder test scores shows only a negligible 1% gain. Instead of twelve students being seen to improve, only

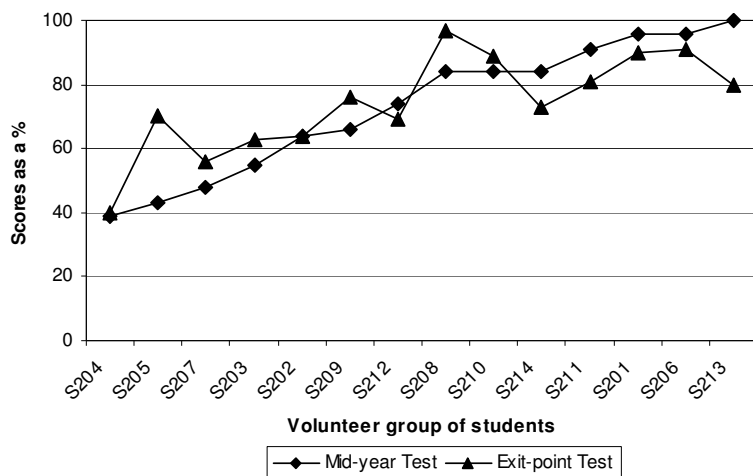


Figure 3. Volunteers mid-year and exit-point tests

six out of the fourteen – less than half the group – have higher scores by the end of the training period. On the strength of evidence of this kind, it is obviously difficult to justify the additional costs involved.

What we can see here, however, comparing the three sets of results for these volunteers is that in real terms, only two students have failed to make any progress (gaining their highest score

in the original mid-year test). Figure 4 demonstrates that the remaining twelve have all done better as a function of the longer period of training, although only three of these gained their highest score of all at the exit point. These, of course, are the only three that we would ever know about under normal assessment conditions.

4 Conclusions Contrary to the impression conveyed by routine assessment results, extended training does undoubtedly seem to facilitate enhanced practical phonetic skills. While there appear to be some students who demonstrate an innate phonetic ability, doing well right from the start, there are others for whom continued exposure to the training routine is highly beneficial. In the population in Figure 2, Subject 5, for example, has a virtually doubled score at the exit point, from 43% in the mid-year test to 82% in the re-test at the end of the year. The evidence, indeed, seems to justify the expense.

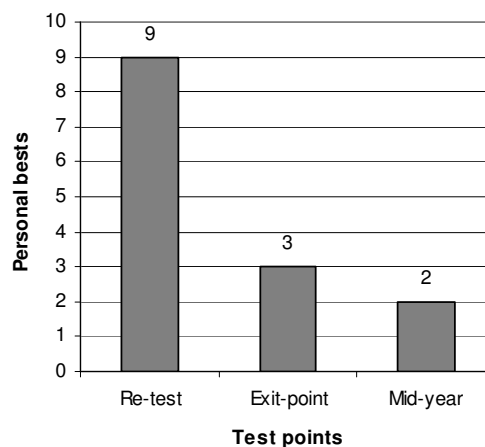


Figure 4. Personal best scores as a function of test

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